REMARKS

Claims 1-30 are pending in the present application. Claims 1-30 stand rejected under 35 USC 103 (a) over Cohen et al. U.S. Patent 6,222,937 and Schmitt U.S. Patent 5,983,220.

Applicants respectfully request reconsideration in view of the remarks hereinbelow.

I. Claim 1 rejection

According to the Office Action Cohen et al. shows the following: providing first, second, and third dimensions representing first, second and third characteristics of groups pictures (Fig. 7, Fig. 21, column 5, lines 5-35, column 7, lines 39-60, column 18, lines 35-50), and providing in a scatter plot a plurality of pictures according to each dimension along each axis. (Fig. 7, Column 7). The third dimension is evidenced by distinct visual characteristics of the icon (shading, Fig. 7).

The Office action states that Cohen et al. do not show how the pictures are retrieved from a database, where each icon represents a group of pictures in a database, but suggests that Schmitt shows this (abstract, Fig. 16, 23, column 2, lines 35-65) to navigate pictures. The Office Action contends that it "would have been obvious to a person with ordinary skill in the art to add this feature of Schmitt to Cohen et al. because it will provide a convenient way to navigate pictures."

II. The Office Action Interprets the References In A Manner that is Not Supported By the References.

The applicants respectfully submit that Cohen et al. and Schmitt do not support the propositions for which they are submitted in the Office Action.

Turning first to Cohen et al., the Office Action contends that Cohen et al. shows:

A. navigating pictures (column 2, lines 20 - 45)

Cohen et al. does not involve navigating pictures as is suggested in the Office Action. Instead, as is indicated at column 2, lines 20 – 45 of Cohen et al., what is provided in Cohen et al. is:

> *... a **method and system for 3-dimensional imaging of an object.** The system collects **images of the object from a plurality of vantage points.** For each of a plurality of points on a surface surrounding the object, the system determines based on the collected images the intensity value and direction of light that emanates from the object and passes through the point for each of a plurality of directions. The system then stores each determined intensity value in a data structure indexed by the point on the surface and by the direction. **From this 4-dimensional representation of the appearance of the object, the system can render images of the object from arbitrary vantage points.** For each pixel of the image to be rendered, the system interpolates the intensity value of that pixel from the stored determined intensity values. **(Emphasis supplied)***

Thus, the purpose of Cohen et al. is generating a single image of a single object from any of a plurality of vantage points using a 4 dimensional database of intensity values and light direction indications. The 4 dimensional database is determined using captured images of the object. Cohen et al. does not appear to teach or suggest storing pictures or providing a way to navigate among the pictures.

The remaining lines of column 2 cited by the Office Action in support of the position that Cohen et al. shows navigating pictures are lines 30 - 45. The following quotes lines 30 - 42:

> *In another aspect, the **system generates coefficients for a plenoptic function describing light that passes through each point on a closed surface.** The system selects an overall direction of interest as inward or outward to indicate whether an object inside the surface or a scene outside the surface is to be imaged. The system then selects a plurality of points on the surface. **For each selected point on the surface, the system estimates the intensity value of a light ray that passes through that point in the selected overall direction for each of a plurality of directions in the selected overall direction.***

This is a useful system where an image an object is to be generated of an object from multiple vantage points. However, there is still no discussion of navigating pictures.

The remaining lines of column 2 cited by the Office Action are lines 42-45 of column 2 of Cohen et al. The following quotes lines 42 – 49:

> *In yet another aspect, the invention comprises a computer-readable medium that contains a data structure for representing an appearance of an object. The data structure has for each of a plurality of points surrounding the object and for each of a plurality of directions, an intensity value representing light that emanates from the object in that*

direction and passes through the point.

This is a useful data structure where an image of an object is to be generated using the 4 dimensional database described above. However, there is still no discussion of navigating pictures. The term navigating does not otherwise appear anywhere the Cohen et al. reference.

It is noted that Cohen et al. describes, with reference to Fig. 6 the use of a specially designed stage for capturing images using a hand-held camera for use in forming the database and further describes user interface functionality for this system with reference to Fig. 7 as follows:

> *While pictures are being taken by an operator using the hand-held camera, it is preferable that the operator obtains a reasonable sampling of all possible vantage points. To facilitate taking a reasonable sample, a collection system displays a collection user interface. FIG. 7 illustrates the collection user interface. The user interface displays a representation of the stage **701** with a translucent hemisphere **702** surrounding the object. The user interface displays an indication of the different orientations from which pictures have been taken on the surface of the hemisphere, as a trail of rectangular shapes **703**.*

There is no teaching or suggestion that rectangular shapes 703 are pictures. Even if there were, the purpose of such a presentation is not to provide a tool for navigating among the pictures and indeed Cohen et al. does not teach or suggest permitting any form of navigation among the captured pictures or even storing such pictures as pictures in a form that allows navigation.

B. Providing first, second, and third dimensions representing first, second and third characteristics of groups pictures (Fig. 7, Fig. 21, column 5, lines 5-35, column 7, lines 39-60, column 18, lines 35-50)

The applicants respectfully submit that the cited portions of Cohen et al. does not support the proposition that Cohen et al. describes providing first, second and third dimensions representing first, second and third characteristics of groups of pictures.

Specifically, Fig. 7 has already been discussed and has been shown to comprise a users interface display that indicates only one characteristic of a captured picture - *different orientations from which pictures have been taken on the surface of the hemisphere 702.* Fig. 21 merely shows a flow chart for

generating the user interface shown in Fig. 7 as a part of forming a database to be used in generating an image of an object from a particular vantage point relative to the object.

Similarly, Cohen et al. at column 4, lines 65 - 68 and column 5, lines 1 – 37 fail to support this proposition. These lines state as follows:

> *To generate the coefficients for the Lumigraph function, the Lumigraph system first collects a series of pictures of the object from many different vantage points. The Lumigraph system digitizes the pictures and stores the red, green, and blue intensity values for each pixel of each picture. From these intensity values, the Lumigraph system then estimates a weighted average of the intensity values of the light rays that emanate from the object and that would pass through the face of the cube in small pre-defined areas and in pre-defined directions. The centers of the pre-defined areas are referred to as Lumigraph points, and the pre-defined directions are referred to as Lumigraph directions. FIG. 2 is a block diagram illustrating a cube that surrounds an object. The Lumigraph points are arranged on the six faces* ***201 - 206*** *of the cube* ***200*** *that surrounds the object. The Lumigraph points* ***207*** *are evenly spaced throughout each face of the cube.*
>
> *FIG. 3 illustrates a collection of intensity values, one for each Lumigraph direction, that is associated with a Lumigraph point. The collection of these weighted average intensity values indexed by their Lumigraph point and their Lumigraph direction are the coefficients of the Lumigraph function and are stored as a Lumigraph data structure. The Lumigraph data structure represents a subset of the plenoptic function relevant to the object. These intensity values are illustrated as one 2- dimensional array, indexed by variables u and v, for every Lumigraph point.* ***Thus, the Lumigraph data structure is a multi-dimensional array that contains intensity values indexed by an indication of a Lumigraph point and a Lumigraph direction.*** *Each light ray (s, t, u, v) that passes through a Lumigraph point in one of the Lumigraph directions is referred to as a Lumigraph ray. The intensity value (coefficient) of a Lumigraph ray is the average of the intensity values in a pre-defined area. The Lumigraph rays for each face are considered to emanate from a plane 301 that is parallel to the face 302 of the cube and a unit distance from the face.* ***Thus, each Lumigraph point has a different set of intensity values associated with it and stored in its 2-dimensional array. (emhasis supplied)***

Thus, Cohen et al. at column 5, lines 5-35 clearly describes forming a multi-dimensional *Lumigraph* data structure and not a database of individual pictures.

Further, column 7, lines 39-60 of Cohen et al. do not teach or suggest providing first, second, and third dimensions representing first, second and third characteristics of groups of pictures as suggested in the Office Action, specifically, these lines state as follows:

> While pictures are being taken by an operator using the hand-held camera, it is preferable that the operator obtains a reasonable sampling of all possible vantage points. To facilitate taking a reasonable sample, a collection system displays a collection user interface. FIG. 7 illustrates the collection user interface. The user interface displays a representation of the stage **701** with a translucent hemisphere **702** surrounding the object. The user interface displays an indication of the different orientations from which pictures have been taken on the surface of the hemisphere, as a trail of rectangular shapes **703**. Alternatively, the pictures can be taken from various pre-defined vantage points. Taking the pictures from pre-defined vantage points would obviate the use of the special markers and calculating the vantage points for each picture, since the vantage points would be known in advance.
>
> **Development System**
>
> The development system for the gantry-based collection system is straightforward. Each pixel of the digitized picture corresponds to a weighted average intensity value of a Lumigraph ray. **Thus, the development system stores the intensity value from the pixel into the Lumigraph data structure.**

Thus the cited lines, column 7, lines 39-60, merely describe the formation of a data structure based upon image data from the pictures. No database is formed for the pictures themselves.

Thus, it is clear that none of the cited portions of Cohen et al, support the proposition that Cohen et al. shows providing first, second, and third dimensions representing first, second and third characteristics of groups pictures.

C. Providing in a Scatter Plot a Plurality of Pictures According to Each dimension along each axis. (Fig. 7, Column 7, lines 39 – 60) The third dimension is evidenced by distinct visual characteristics of the icons (shading, Fig. 7)

As noted above, Fig. 7 shows rectangular shapes that indicate the different orientations from which images of an object have been captured. There is no teaching or suggestion that rectangular shapes 703 are images. The discussion of Fig. 7 makes no reference to a purpose for the shading shown in Fig. 3. The word

shading does not appear in the '937 reference. Thus the above-cited portions of the Cohen et al. reference do not describe providing in a scatter plot a plurality of pictures according to each dimension along each axis as is suggested in the Office Action.

D. Schmitt Reference- how pictures are retrieved from a database wherein each icon represents a group of pictures in a database.

The Office Action admits that Cohen et al. does not show how the pictures are retrieved from a database or show an embodiment where each icon represents a group of pictures in a database, but contends that Schmitt shows this (abstract, Fig. 16, 23, column 2, lines 35-65).

Here too, the applicants submit that the cited portions of the Schmitt reference do not support the proposition for which they are asserted in the Office Action. Specifically,

> The Schmitt abstract states as follows:
>
> Abstract: A database evaluation system provides for intuitive end user analysis and exploration of large databases of information through real time fuzzy logic evaluation of utility preferences and nearest neighbor exploration. The system provides for domain modeling of various types of information domains using attribute mappings to database fields, and utility value weightings, allowing multiple different domain models to be coupled with a same database of information. **User interaction with the evaluation system is through an interactive key generator interface providing immediate, iterative visual feedback as to which candidate items in the database match the user's partial query. A proximity searcher user interface provides for nearest neighbor navigation and allows the user to determine which items in the database are closest to a given item along each independent attribute of the items, and selectively navigate through such nearest neighbors.** A fractal proximity searcher simultaneously displays multiple levels of nearest neighbors for user selected attributes. **(Emphasis supplied)**

Thus, what is provided in Schmitt is a method for searching for data related to items and assembling immediate iterative visual feedback with item information ordered by attribute proximity and a user interface that allows a user to see the ordered images and select among them. The use of an icon representing a group of images is not discussed therein.

Fig. 16 further fails to provide any support for the position that Schmitt shows the use of an icon to represent a group of images as is suggested in the

Office Action. Instead Fig. 16 is one example embodiment of a way in which a user controlled item weighting system described in Schmitt can impact what is presented on a display. Specifically Schmitt describes this process at column 15, line 20 to column 16 line 15 as follows:

> In FIG. 15 the size of a thumbnail of an item is proportional to the score of the item, i.e. how well the item fits the selection range (i.e. between 18 and 30K: full size, from 30K up to 50K the size shrinks, as well as from 18K down to 5K), given the slider position in the control window 13.10 and the corresponding fuzzy weighting.
>
> An alternative method of reflecting the match index is by fading out to the thumbnail. This is shown in FIG. 16.

Thus, Fig. 16 does not support the proposition of the Office Action. Further, Fig. 23, fails to teach or suggest a method for navigating in a database using an icon that represents a group of images. Specifically,

> To demonstrate the usefulness of this navigational tool, assume a case in which the user tries to visually locate items in three dimensions.
>
> In this case of just three attributes (e.g. Price, Horsepower, and Acceleration), a 2D or 3D scatter graph is adequate to situate each item according to its ratings and relative to the other items in the database for individual attributes, such as in FIG. 23. A display like this illustrates how similar a given car is to each of its neighbors: the farther the distance between two cars, the more different they are.

Note that each "x" in each of the scatter graphs shown in Fig. 23 represents an individual item (car) and not a group of images.

Accordingly, it has been shown that neither the Cohen et al. nor the Schmitt reference actually supports the various propositions for which they are asserted in the Office Action. Therefore the Examiner has failed to make a prima facie showing of unpatentability as is required.

III. The Cohen et al. reference and Schmitt reference are not properly combinable.

The Cohen et al. and Schmitt references are not properly combined in that Cohen is directed to presenting a single image of an object based upon a Lumigraph of the object and Schmitt is directed to sorting through items using fuzzy logic and presenting a visual image representing the sorted items organized

by way of item attributes. The references therefore teach apart as the purpose of Cohen et al. does not maintain a database of pictures and provides no way for a user to select an image from a set of captured pictures. Thus there is no motivation to provide the way to navigate pictures described in Schmitt with Cohen et al. as there is no database of pictures to be navigated.

IV. Claims 16-30

Claims 16-30 stand rejected under 35 U.S.C. 103(a) because it is contended that they "show the same features as above and are rejected for the same reasons." Accordingly, the applicants submit that the rejection fails for the same reasons described above; the references fail to support the propositions for which they are asserted and the references are not properly combinable.

CONCLUSION

The references do not support the propositions for which they are asserted in the Office Action thus, the Examiner has failed to make out a prima facie case of unpatentability. The references are not properly combinable as there is no motivation to combine these references. Accordingly, the application is believed to be in proper form for allowance, prompt notice of which is earnestly solicited.

It is respectfully submitted, therefore, that in view of the above amendments and remarks, that this application is now in condition for allowance, prompt notice of which is earnestly solicited.

Respectfully submitted,

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